

EN1A (230M07)

FREE CUTTING ENGINEERING STEEL

PRODUCT OVERVIEW

EN1A (230M07) is a commercial cold drawn bright mild steel product which is known as a 'free cutting' material because of its suitability for use on both CNC machines and automatic lathes. EN1A is ideal for use in the production of repetitively turned parts and should be considered for applications where excellent machinability is a driving factor. Normally supplied in bright form, this non-alloyed, low carbon-manganese engineering material can also be case hardened to promote greater wear resistance although the product is not recommended for general case hardening work. Available in both leaded and unleaded versions, increased lead content enhances overall machinability making EN1A a good choice for intricate machining and drilling ops.

A FREE CUTTING ENGINEERING STEEL

The positive machinability characteristics of EN1A also results in the extension and longevity of tooling life which makes this engineering steel a cost-effective solution. It is particularly suited to component manufacture where the product is not subjected to high service stresses and where a superior finish is required under high volume production rates. It is recommended that EN1A (230M07) is machined at high speeds with automatic feeds using a general-purpose carbide tool. Most machining lubricants are effective during the manufacturing process although it should be noted that cutting oils can cause an amount of surface staining. The inclusion of manganese and sulphur in the products' chemical composition actually acts as a 'chip breaker' which allows it to be fed and machined at high speeds without impacting on overall tooling life.

In comparison with general mild steel, EN1A (230M07) offers numerous benefits including a cleaner finish, increased straightness and much tighter sectional tolerances. As EN1A is cold drawn it can be brought much closer to the finished machine size and this has a positive impact on overall machining costs. Cold drawn products of this type also offer a significant increase in strength when compared to similar hot rolled bar products.

Another benefit is that Thames Stockholders stock EN1A (230M07) in a broad range of shapes and sizes which, due to the availability of incremental sizes, may negate the need for customers to machine the material down prior to fabrication.



PRODUCT AVAILABILITY

Round bar, flat bar, square bar and hexagon.

MATERIAL SPECIFICATIONS

BS970: 1955	EN1A
BS970/PD970: 1970 onwards	230M07
European	95Mn28 BS En 11SMn30
Werkstoff No.	1.0715
US SAE (AISI)	1213, 1215

COMMERCIAL APPLICATIONS

- Control linkages, shafts, low stress hubs
- Casings and handles
- Brake hose ends, hydraulic parts
- Brake pistons, wheel nuts and inserts
- Gearbox components (if case-hardened)
- Padlock shackles, vice jaws
- Studs, nuts and bolts

PRODUCT BENEFITS

- Free cutting material
- Excellent machinability
- Helps extend tooling life
- Cleaner finish
- Produced to tighter sectional tolerances

FOR CHEMICAL AND MECHANICAL PROPERTIES, PLEASE REFER TO THE REVERSE SIDE OF THIS TECHNICAL DATASHEET



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CONSIDERATIONS

Although EN1A can be welded it is not recommended as the percentage lead content makes this difficult. It is also recommended that the product is not utilised in the production of hollow parts since the traverse properties of the product are not so good. Apart from excellent machinability EN1A also offers reasonable ductility and strength.

CHEMICAL COMPOSITION (weight %)

	C	S	Mn	S	P	Pb (where specified)
Min			0.90	0.25		0.15
Max	0.15	0.40	1.30	0.35	0.07	0.35

MECHANICAL PROPERTIES (cold drawn condition)

Max Stress	370-480 n/mm ² min	dependent on ruling section
Yield Stress	240-400 n/mm ² min	dependent on ruling section
0.2% Proof Stress	225-360 n/mm ² min	dependent on ruling section
Elongation	6 - 10% min	dependent on ruling section

ABOUT THAMES STOCKHOLDERS

Thames Stockholders is a stockholder and one of the UK's leading suppliers of engineering steels. We stock EN1A (230M07) in round, flat, square and hexagonal bar and offer our products to both UK and International customers. We can also process your products internally and cut your material to your exact size requirements. With ideal proximity to the UK's main motorway network and ports, our location is ideal for the supply and distribution of high-quality engineering steels.

To discover more about our products and to receive a competitive quotation, please call Thames Stockholders today to speak to a member of our technical team on +44 (0)20 8805 3282.



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